

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1, 7, 13, 19, 25, 27, 31, 33 and 34 are amended. Claims 1, 6, 7, 12, 13, 18, 19, 24, 25 and 29-34 are pending.

I. Rejection under 35 U.S.C. § 102

In the Office Action, at page 2, claims 1, 6, 13, 18, 25, 29 and 30 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,999,392 to Kato et al. This rejection is respectfully traversed because Kato does not discuss or suggest:

the high melting point recording layer consisting of at least one of tungsten and tantalum,

when recording an information, by laser irradiation from the direction of the first dielectric layer, the recording layer is swollen into the directions of the first and second dielectric layers at the laser-irradiated domain and crystalline particles of the recording layer and the first and the second dielectric layers are formed by the reaction and diffusion by the laser irradiation,

as recited in amended independent claim 1.

Kato discusses a recording layer having a high crystallization temperature. The recording layer may be made from at least Sb and Te, in addition to another element, for example, W or Ta. The recording layer in Kato is a conventional phase change recording medium such that recording of information is carried out by making certain domains of the recording layer amorphous by laser-irradiation with appropriate energy. Reproducing of information is carried out based on the difference in reflectivity due to the different absorption coefficients of an optical constant between an amorphous recorded domain and a crystalline non-recorded domain of the recording layer.

Kato does not discuss or suggest that the recording layer may be made from only tungsten or tantalum. Kato discusses that the recording layer may be made from a compound, including tungsten and tantalum.

Further, Kato does not discuss or suggest that when recording information, the recording layer is swollen into the directions of the first and second dielectric layers at the laser-irradiated domain and crystalline particles of the recording layer and the first and the second dielectric layers are formed by the reaction and diffusion by the laser irradiation. There is no indication that the recording layer of Kato would be swollen in the directions of the first and second dielectric layers at the laser-irradiated domain. Also, Kato does not suggest that crystalline

particles of the recording layer and the dielectric layers are formed by the reaction and diffusion by the irradiation.

In contrast, in the recording medium of amended independent claim 1, for example, as shown in Figs. 3B and 4B, recording of information is carried out by making the recording layer of either tungsten or tantalum swollen into the directions of the first and second dielectric layers at the laser-irradiated domain and crystalline particles of the recording layer and the first and the second dielectric layers are formed by the reaction and diffusion by the laser irradiation. Reproducing of information recorded on such a recording layer by the recording medium involves generating plasmon using the crystalline particles as a scattering source to reproduce information recorded in the recording layer using a super-resolution near-field structure regardless of the diffraction limit of the laser used.

As shown in Fig. 5 of the present specification, the carrier to noise ratio with respect to varying mark lengths is greater for the super-resolution near-field recording medium according to the present invention than the conventional phase change recording medium, such as that which is disclosed in Kato.

Therefore, as Kato does not suggest "the high melting point recording layer consisting of at least one of tungsten and tantalum, when recording an information, by laser irradiation from the direction of the first dielectric layer, the recording layer is swollen into the directions of the first and second dielectric layers at the laser-irradiated domain and crystalline particles of the recording layer and the first and the second dielectric layers are formed by the reaction and diffusion by the laser irradiation," as recited in amended independent claim 1, claim 1 patentably distinguishes over the reference relied upon. Accordingly, withdrawal of the §102(e) rejection is respectfully requested.

Also, Kato does not discuss or suggest "generating plasmon using crystalline particles of the high melting point recording layer and the first and second dielectric layers as a scattering source to reproduce information recorded in the recording layer using a super-resolution near-field structure regardless of a diffraction limit of a laser, wherein the crystalline particles are swollen into the directions of the first and second dielectric layers, and wherein the high melting point recording layer consists of at least one of tungsten and tantalum," as recited in amended independent claim 13. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Additionally, Kato does not discuss or suggest "a high melting point recording layer, the high melting point recording layer consisting of at least one of tungsten and tantalum; and a second dielectric layer, wherein crystalline particles of the recording layer and the first and second dielectric layers generate surface plasmon when reproducing information of the high-

density recording medium, wherein the crystalline particles are swollen into the directions of the first and second dielectric layers," as recited in amended independent claim 25. Accordingly, withdrawal of the §102(e) rejection is respectfully requested.

Claims 6, 18, 29 and 30 depend either directly or indirectly from independent claims 1, 13 and 15 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claims 6, 18, 29 and 30 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

II. Double Patenting Rejections

Claims 1, 6, 7, 12, 13, 18, 19 and 29-34 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 21 and 25 of US 2005/0254408 to Hwang et al.

Claims 1, 6, 19, 20, 25 and 30 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 26 and 45 of US 2005/0207327 to Kim et al. ("Kim I").

Claims 1, 2, 5, 6, 25, 26, 28 and 29 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 30 and 52 of US 2004/0247891 to Kim et al. ("Kim II").

Regarding the provisional double patenting rejections, the co-pending applications to Hwang, Kim I and Kim II do not suggest recording information by making the recording layer swollen into the directions of first and second dielectric layers at a laser-irradiated domain and forming crystalline particles of the recording layer and the first and second dielectric layers formed by reaction and diffusion by laser irradiation. Claims 1, 2, 5-7, 12, 13, 18, 19, 20, 25, 26 and 28-34 would not have been obvious over Hwang, Kim I and Kim II due to such a distinction.

Accordingly, withdrawal of the nonstatutory obviousness-type double patenting rejections is respectfully requested.

Conclusion

In accordance with the foregoing, claims 1, 7, 13, 19, 25, 27, 31, 33 and 34 have been amended. Claims 1, 6, 7, 12, 13, 18, 19, 24, 25 and 29-34 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: March 6, 2009

By: 

Kari P. Footland

Registration No. 55,187

1201 New York Avenue, N.W., 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501